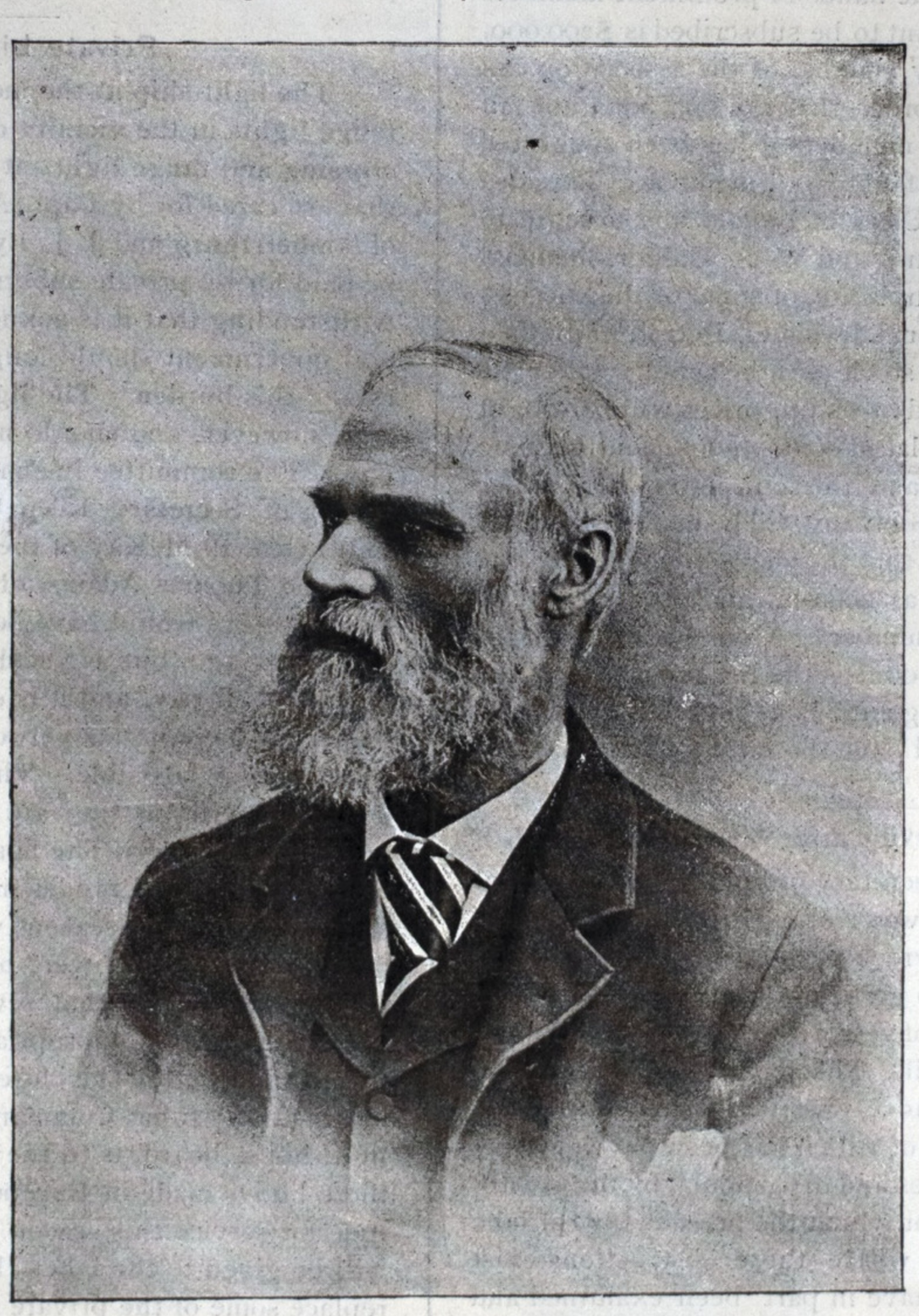
MARINE REVIEW.

VOL. IV. CLEVELAND, OHIO, THURSDAY, OCTOBER 8, 1891. No. 15.

Capt. William W. Bates, Commissioner of Navigation.

Capt. William W. Bates, commissioner of navigation and one of the ablest advocates of protection to American shipping, had been connected with the shipbuilding industry on the lakes at different times during forty years previous to his appointment in the government service, and is known in every port from Duluth to the St. Lawrence. His father was Stephen Bates, a shipbuilder of Calais, Me. In 1845, at the age of eighteen, Capt. Bates came to the lakes and spent the following winter at his trade in Huron and Sandusky. Three years later he settled in Manitowoc, Wis., where he built a number of vessels, among them the Mary Stockton and the schooner Challenge, the first clipper on the lakes. He wrote many articles to the press, and soon became known as a critic and an authority on vessel matters. In 1851 he reported the section of naval architecture and shipbuilding of the World's Fair in New York for a Chicago paper. In 1852 he began letter writing to public men, by addressing Senator Douglass of Illinois, on reforming our tonnage admeasurement rules, and improving the models of vessels of all kinds. With the late famous ship architect and author, John W. Griffiths, he edited and published from 1854 to 1857 "The Nautical Magazine and Naval Journal," and his studies and observations made him master of all the facts in the history of American shipping, in the decade before the war, a period in which it rose and fell like an ocean wave. About this time he prepared a bill at the instance of Hon John Cochrane, chairman of the House committee on commerce, which, six years afterward, when shorn of some of its best provisions, became our present admeasurement system.

Capt. Bates had returned to Wisconsin and was building steamers for the Goodrich Line when the war broke out. He obtained a commission and raised a company, many of the members being shipwrights of his employ. After the war he carried on a dry dock, shipbuilding and repairing business in Chicago, but his entire establishment with all his savings was swept away by the fire in 1871. Capt. Bates spent several years on the Pacific coast later, and returned to the lakes in 1884. He was employed at Buffalo as chief inspector and manager of the Inland Lloyds Register when appointed to the important position which he now holds. Much of Capt. Bates' time of late years has been devoted to the obscurer problems of shipping economy and to the advocacy of protection to our marine. No writer has contributed more than he to direct public opinion rightly in matters pertaining to American shipping. He has been a leader in the affairs of the Shipping League. We are indebted to the Marine Journal of New York for the accompanying portrait.



CAPT. WILLIAM W. BATES, COMMISSIONER OF NAVIGATION.

Lake Freight Situation.

With the grain movement holding the key to the situation, everything has flattened out on account of the slump in that line of trade and cargoes are scarcer than they have been at any time since June last. Even the ore companies have been unable in some cases during the past few days to furnish cargoes for their own vessels, although $1 to $1.10 had been paid on 10,000 to 15,000 tons of ore to go to Buffalo just before the grain gave out. Ore rates now are nominal at 85 cents from Escanaba, $1 from Marquette and $1.10 from Ashland, and these figures might be reduced if there was any pressure in that direction. Ore shippers having a few Escanaba cargoes are offering only 75 cents. There is some hope of a renewal of grain shipments, and unless the farmers, who are undoubtedly holding the grain, decide to move it the scarcity of ore will force early an closing of navigation.

The E. M. B. A. will build a Steel Boat.

As the official paper of the Excelsior Marine Benevolent Association the MARINE REVIEW announces that a stock company composed only of members of that association, will have built a first class steel freighter during the coming winter. Subscription lists for stock will be placed in the hands of prominent members at the different parts. The amount to be subscribed is $200,000, the shares being $100 each. Any member of the association can afford to take one share, and in order that the boat may not fall into the hands of the wealthier members it has been suggested that $5,000 be placed as the limit for any one member. The idea was originated by Grand Prest. Clark of Buffalo and brought to the present status by Lyman Hunt and W. A. Collier, financial secretary. The boat will be a duplicate of some of the successful steel freighters put forth from Cleveland, Detroit or Buffalo yards. It is expected that the stock will be rapidly taken, so that unless something unexpected turns up, prices will be sought from shipyards and the contract placed before Jan. 1. Although no one has thought seriously of a name, the four letters E. M. B. A., will no doubt be selected. The company will be managed similar to other stock companies, except that the manager, elected for one year, will be a member of the association and the boat will be officered as far as possible by members. Over $30,000 of stock can be placed in Cleveland as soon as the list is ready. If the friends of the association are as generous as they were in fitting up the lodge rooms, the boat will have the most palatial outfit to be found on the lakes.

Proposed Government Survey and Wrecking Vessel.

Capt. George P. McKay, secretary of the Cleveland Vessel Owners' Association, is in a quiet way making preparations regarding the proposed survey and wrecking boat for the lakes, that will enable the vessel owners to go before Congress this winter with a full knowledge of the kind of vessel desired as well as the service to be expected, after she is built. The plan is to have a government vessel to discover and remove obstructions, such as reefs, shoals and boulders, the existence of which has been developed by the prevailing low water of the lakes, and in particular by the greatly increased draught and tonnage for which the present type of lake vessel is designed. Localities where these obstructions exist are multiplying every day, and have in part been examined and marked by the vessel owners themselves, and at their own cost for the protection of the great values at risk in vessels and cargoes, but a burden of this nature ought not to be imposed upon the vessel owners, and in fact only a properly equipped government organization is capable of dealing with the matter with the necessary thoroughness and accuracy. The accidents occurring on account of these obstructions are almost invariably costly, in view of the size, weight and speed of the modern type of lake vessels. In many cases the obstructions are of small extent and could be readily taken out by blasting. In others the sand and gravel shoals could easily be dredged away and would not probably reform. In still others it might be found more economical and possibly more advantageous to buoy or light the obstruction than to remove it; but in any case a thorough examination is required to determine the best course to pursue.

Consideration has been given to the kind of boat and equipment desired and the cost is estimated at $100,000, or $85,000 for the vessel and $15,000 for equipment. It would be necessary to provide also for an annual cost of maintenance of $15,000 or $20,000. The general description of the vessel to be applied for will be as follows: Length 160 feet, width 30 feet, draught 9 feet, double bottom, twin screws, ample power of boiler and engine, decks open at each end with steam capstans and steam derrick hoists bow and stern, a suitable wrecking pump, diving outfit and blasting and mechanical appliances of the various kinds needed, with ample quarters for ship's company, survey party and other necessary employes. Adequate boat facilities would also be needed including particularly two steam launches for sweeping the bottom, rafts for mooring over rocks to examine them, etc. Such a vessel on the lakes would save yearly an immense sum of damage and repairs, besides furnishing information for correcting the lake charts, which are now in many respects lacking in recent information.

Private Lights—Gas Buoys.

The light-ship at the mouth of the Detroit river, float and range lights in the vicinity of Amherstburg and the Lime-Kilns crossing and range lights at Point Edward are aids to navigation that are cared for by Capt. Andrew Hackett and Duff & Gatfield of Amherstburg and J. J. Lynn of Port Huron, and they must be paid for by private subscription from the vessel owners, notwithstanding that it is acknowledged on all hands that the general government should long ago have relieved the vessel interests of this burden. The light keepers have given faithful service, however, and should not be compelled to wait for their pay. The committee in charge of collections for this work, consisting of Secretary Keep of the Lake Carriers' Association, Capt. Geo. P. McKay of the Cleveland Vessel Owners' Association and Thomas Adams, of Detroit, had expected that these light keepers would have been paid for half the year's service some time ago, but as yet they have received but about 25 per cent. of their pay, and it is earnestly requested that such vessel owners as have not as yet remitted their share of the expense do so as soon as posssible. These aids to navigation can not be dispensed with, as they are absolutely necessary for both day and night service. The floats on the Lime-Kilns crossing as well as the several ranges must be used for day beacons, as was shown early in the season when several boats suffered heavy damages before they were placed in position.

It was thought that several of the gas buoys, for which Congress made an appropriation last winter, would be assigned to the lakes before the close of the present season, but the latest information from Commander Coffin, naval secretary of the light-house board, is to the effect that it was necessary to have these buoys made in Europe and they will not be received in time for service this season. It is probable that six of them will be given to the lakes, however, and they will next season replace some of the private lights.

Lake receipts of grain at Buffalo last week were 6,463,850 bushels. Shipments east by rail and canal were 3,000,000 bushels less than receipts. This does not indicate an encouraging condition in the elevators at Buffalo.

Commander Heyerman says the general government should take charge of the lights and buoys in Superior harbor, now maintained by the city. Other government officials as well as vessel owners, agree with Commander Heyerman on this point, although the last Congress could not be induced to make an appropriation for the maintenance of these necessary aids to navigation.

Tonnage Under Contract.

If the American Steel Barge Company will build at West Superior this winter, as reported, eight whalebacks for lake service, the freight carriers now under contract in lake ship yards for service next season will aggregate in carrying capacity about 40,000 gross tons. This includes two wooden boats in the yard of F. W. Wheeler & Co. at West Bay City, duplicates of the Sauber and Tampa, and to be built for McBrier and others of Erie and Penoyer Bros. of Au Sable; a steel boat at the same yard for some of the owners of the Weed and others interested with them; the big wooden steamer building by Capt. James Davidson, also of West Bay City; two lumber carrying steamers at Marine City for the Mills Transportation Company and a steel steamer which the Detroit Dry Dock Company will build on its own account if an order is not received.

The Ship Owners' Dry Dock Yard.

The supplement presented with this issue illustrates an interesting dock yard scene as well as the largest dry dock plant on the lakes. The occasion of the illustration is the opening of the second dock, which is fully described below. This new dock is occupied by the steel steamer Pontiac, which will receive the most extensive repairs put on any steel lake steamer. In the other dock, the dimensions of which are 340 feet on keel blocks, 50 feet width of gate and 16 feet deep on blocks, is presented the C. B. Lockwood, having the largest beam of any wooden vessel on the lakes. Thus it will be seen that the Ship Owners' company has two docks that will accommodate the largest vessels on the lakes. The first dock is deep enough to receive vessels with cargo.

The general dimensions of the new dock are: Total length on floor line from gate sill to end of dock 336 feet, width on bottom 45 feet, width on top, main chamber, 85 feet. The sides slope on an angle of 45 degrees, faced with alters having ten inches rise and tread. The entrance is formed and protected by cribs, 55 feet long and 24 feet wide, one on each side, and the inside face, adjoining the main chamber of the dock is sloped to an angle corresponding with the sides of the dock. The gate entrance is 47 feet wide on the sill and 55 feet in the clear on the top of the dock. At ordinary stage of water there will be 14 feet on blocks and 15 feet 4 inches over the gate sill. The gate is closed with a double faced diaphragm gate constructed of wood in a manner to afford a liberal factor of safety, and supplied for filling with four wickets, 24 inches in diameter.

The machinery for pumping out the dock consists of two vertical pumps, with 24 inches discharge each, driven by two horizontal engines of 18x20 inches. Steam is supplied by three tubular boilers, 6 feet in diameter and 16 feet long. This equipment will empty the basin in from 40 to 45 minutes when docking a vessel of average size. The equipment includes hose line for washing out the dock and air line for Lucigen lights, also derricks at each end of sufficient capacity for all ordinary requirements. The dock was completed and tested on Aug. 31, and immedintely placed in use. It has been in constant use since that time and is giving general satisfaction.

The principal material required in the construction was as follows: Pine timber and lumber 600,000 feet, oak timber and lumber 300,000 feet, piles, partly oak and partly soft wood 1,200, iron of various kinds 50 tons, concrete 700 cubic yards. There was also required 30,000 cubic yards of earth work and 18,000 yards of dredging. Work was begun Sept. 8, 1890, and completed Aug. 26, 1891.

Detroit Building News.

Special Correspondence to the MARINE REVIEW.

DETROIT, MICH., Oct. 8.—The most important matter in marine circles here this week is the closing of the contract by the Detroit Ferry Company for a new steamer, to eclipse anything now in service. It is thought that the contract will go to the Detroit Dry Dock Company, but all the larger builders on the lakes are figuring. It wouldn't surprise a Toledo builder very much if he got it, and it is not improbable that it may go to Cleveland.

Mr. Craig's three light-ships went through the crucial test required by the government here this week. One was put through the eight hour trial and the other two the four hour trial. Commander Ludlow represented the government. Capt. Kelley superintended their construction. It is expected that these ships will be sent to their stations, Gray's reef, White Shoal and Simmon's reef, sometime next week.

The announcement of contracts for three triple engines will interest engine builders. By the time the REVIEW reaches its readers this week the Frontier Iron Works will have that number of contracts. The engines are all for Wheeler. The one for the Hollenbech-Hollister combine is to be 23, 36 and 61 inches by 42 inches, the largest put forth from the Frontier works. The other two will be duplicates of the engines in the Tampa.

West Bay City papers credit Wheeler with prophesying how much his boat is going to surpass the Pope, and at the same time says he is going to build her 14 feet longer than the Pope and several feet wider. In fact the dispatch announcing the contract mentioned the Pope. It looks to a Detroit eye as if the Pope was to be the criterion for the new boat.

No attempt has been made to raise the sunken steamer Kasota since last week, although wrecker Falcon is still confident of his ability to float the boat. She will probably be landed on the American shore when raised althongh a permit has been secured to land her on the Canadian side.

The propellers C. H. Starke and Business, the latter from Ashtabula, got new wheels at the Springwells dock during the past week, and the schooner Groton, which was caught in heavy weather on Lake Huron Tuesday, had a leak stopped. The schooner Massassoit got a new rudder stock at the shears dock, and the propeller City of Glasgow, on her way up stopped long enough to have her coupling gear repaired.

Canal Tonnage During September.

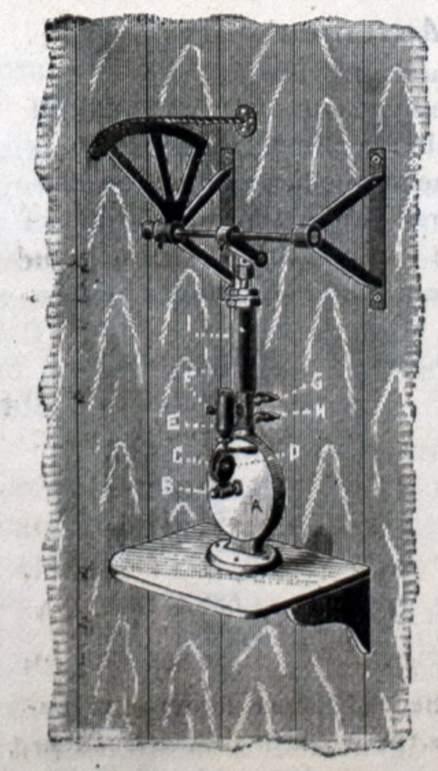
The total freight movement in the Sault canal during September was 1,388,333 net tons, against 1,277,197 tons in September 1890. Notwithstanding the number of boats going up light, there was carried through the canal during the month 351,517 tons of coal, against 285,407 tons in 1890. The general movement of freight through the canal during the month was as follows:

Description.	East-bound	West-bound.
Coal	.....	351,517 tons.
Flour	548,115 bbls.	350 bbls.
Grain	.....	38,000 bu.
Corn	214,300 bu.	.....
Wheat	5,928,840 bu.	.....
Building Stone	6,476 tons.	.....
Copper	8,285 tons.	.....
Manufactured iron	.....	5,036 tons.
Iron, ore	621,316 tons.	.....
Iron, pig	3,021 tons.	.....
Salt	.....	22,579 bbls.
Lumber	54,370 M feet.	.....
Unclassified freight	10,091 tons.	49,424 tons.
Passengers	1,769	1,829

The ore movement through the canal aggregated only 621,316 net tons against 683,459 tons in September 1890, while wheat foots up 5,928,840 bushels against 1,184,105 bushels in 1890.

Rymer's Code and Fog Whistle Operator.

The accompanying cut shows Rymer's patent whistle operating machine, to be used for opperating the whistle on steamers, either as a code or fog signal, the latter use interfering in no way with its use for ordinary code signals. It is compact and requires but little room, being placed on a bracket in the pilot house convenient to the pilot or wheelsman or both. It is connected with a power supply pipe at F. To operate it as a fog signal open regulating valve H, after which it requires no attention, as it is so arranged that it will adjust itself to the varying pressures, if there is any there, by giving the blasts and intermissions in a uniform manner. When necessary to use it for other purposes when in use as a fog signal, press down on lever D once for every blast of whistle required. When not required as a fog signal close valve H. By using lever D, which is nearly balanced, it requires but a small effort to operate the largest whistle. This machine is made in two sizes, both nickel-plated, No. 2 being for pleasure yachts. It is in use on locomotives as an automatic crossing whistle. Write to Wm. Rymer, 395 Champlain st., Detroit, Mich., for prices.



CHICAGO LAKE INTERESTS.

WESTERN OFFICE, MARINE REVIEW,
No. 210 So. Water Street, CHICAGO, Ill., Oct. 8.

The course of grain freights for a fortnight has been the most remarkable, old-timers say, ever experienced in the history of the lakes. At a time when everyone was feeling buoyant over the prospect of a big fall's work, the collapse came. The western farmers listening to the siren in the guise of their alliance, have held their wheat in a way most disappointing to the vesselman. They will pay 25 cents per hundred pounds to get it from Chicago to New York as soon as navigation closes, but they did not realize that they are now cheating themselves out of cheap freights by holding back their grain. Unless the farmers change their minds about selling, the marine business for the rest of the season is going to be dead, and the shippers will rule the roost. In some way it has come to pass that everything seems to hang on grain freights from Chicago, and grain freights from here are in a bad way. It is a fact that 1¾ cents for corn is not the bottom according to the present outlook. It is strange how all the freight prospects of a month ago have disappeared and gloom has come in their place.

Although I have been a member of the Chicago Press club for eight years, I never saw so much interest excited in any junket as in the trip to see the Grant Monument unveiled Wednesday, on board the Lehigh Valley liner Tuscarora. That fine steamer made a beautiful show, with a burgee containing the Press club monogram flying from a mast. The "boys"—members of the club are always called "boys"—fully appreciated the kindness of Capt. W. P. Henry, general manager of the Lehigh Line, in tendering the use of the Tuscarora, and Stewart Murray, western agent, devoted himself to the comfort of the guests in a way that made him many friends. S. D. Caldwell, general manager of the Western Transit Company, added much to the display when he ordered Tuesday the Harlem to take part. She looked great from shore. But it is useless to particularize all who so willingly assisted in making the display a creditable and impressive affair. The lake marine lost nothing by the display, and showed most prople something they had never dreamed of.

The lumber hookers are fast going into winter quarters. It seems they are doing the wise thing. Most of them carry no insurance, and they risk more than they can possibly make in braving fall storms. It is much better lying peacefully at a dock than braving heavy winds and big seas, with a chance of never coming back. As a business proposition the risk of loss during October and November is an important item, whether carried by underwriters or owners, and if boats do not make enough money to cover it, when they have good luck, there is no good sense in continuing to run them. This season has been disastrous to old time vessels, and doubtless many more of them will go to their long home before snow flies.

The press dispatches to the daily papers have told the story of the tug Parker explosion Sunday night. It has taught one great lesson. Tugs and steamers can not use the thick, slimy water in the South Fork without too much risk. Safety demands that water tanks be placed on tugs going into the South Fork, from which their boilers can be fed. These tanks can be refilled from the numerous hydrants along the river as occasion requires. People who have not seen this part of the river have no idea what it is. Silver in the pockets of tug men turns black after they have been there a little while. In warm weather a lighted match dropped on the surface will set fire to the gases arising from the accumulated filth. It is difficult for a boat to crowd its way through. Of course such stuff causes boilers to foam. Now that the long-expected has happened, it must be guarded against in the future.

Lake Superior Grain Movement.

Special Correspondence to the MARINE REVIEW.

DULUTH, Minn., Oct. 8.—The wheat movement out of Duluth fell off last week, shipments being only 1,688,182 bushels against 2,298,417 bushels for the previous week. Receipts were very nearly as large, however, despite the rainy weather which cut down farmers' shipments to a large extent. Wheat rates have gradually gone down and now Buffalo tonnage is below 3 cents with a small demand. The receipts and shipments by days were as follows:

	Receipts.	Shipments.
Monday	694,094	111,444
Tuesday	306,071	402,476
Wednesday	365,490	406,278
Thursday	281,807	259,378
Friday	303,792	88,317
Saturday	342,636	422,289
Total	2,293,890	1,688,182
Previous week	2,298,093	2,298,417
Same week last year	567,024	576,868

There was in store Monday 1,600,000 bushels of wheat and 75,000 bushels of other grain. The wheat increase for the week is 378,000 bushels. It would be a great saving to vessels in both time and trouble if stocks here could increase a good deal more before there are more shipments, so boats could load at one house and not be compelled before they get their cargoes to move around to three or four different houses and perhaps to both sides of the bay.

A resume of the Superior marine business for the year ending Sept. 30, prepared by Deputy Inspector Street, shows arrivals and departures of 1,427 vessels, as against 1,239 for the previous twelve months, and a total tonnage of 1,800,459 against 1,523,231.

The custom house report for September shows foreign exports as follows: Wheat 534,749 bushels, valued at $535,119; flour, 8,895 barrels, valued at $49,475; and other articles valued at $4,121, a total of $589,715, as against $253,730 in August.

The ore shipments from Two Harbors for the week were 27,810 tons, as against 19,802 tons for the corresponding week last year. The total up to Thursday evening was 745,521 tons, only 4,255 tons below the record of 1890. Superintendent Greatmeyer of the Iron Range was here to-day and said that last night they were only 1,000 tons behind and the season's output would equal that of last year. At present shipments have fallen off, from the turning of boats to the grain trade and other causes.

The September wheat movement at Duluth was the largest in the history of the place. Receipts were 8,191,181 bushels, or including flour as wheat 9,691,986 bushels, and shipments 6,410,370 bushels of wheat alone and 8,306.730 bushels of both wheat and flour.

Canadian Barley Trade—Kingston Notes.

Special Correspondence to the MARINE REVIEW.

KINGSTON, Ont., Oct. 8.—At last word has been received from the government that it is the intention to erect range lights in the harbor here. The MARINE REVIEW is entitled to certain credit for this decision. Of late years and since smaller vessels have disappeared, few strange captains would venture to enter Kingston harbor at night. When the lights are erected, entrance will be safe and boats need experience no delay on coming to this port. The information alluded to came from Ottawa on Saturday night.

Last fall the farmers in this vicinity were greatly agitated in their efforts to get their barley here and across the border before the McKinley bill came in effect, because they thought that after the passage of that measure the price would be very low. All the barley grown in this district was brought here and sent to Oswego. Since then quite a change has taken place. Last night six schooners arrived here from lake ports with barley consigned to England via Montreal. This barley was grown from the two-rowed seed brought from England by the goverment and distributed among the farmers by way of experiment. The result was a great success. This is the kind of barley the English brewers use, and the rates quoted for it are from 55 to 60 cents per bushel, while for the six-rowed which American brewers use, only from 40 to 50 cents is offered. It will thus be seen that the bill has been the means of causing better barley prices in Canada. The schooners alluded to will return on Tuesday for more barley. It is quite a novelty to see barley going down the river in barges.

The sailors of Toronto are endeavoring to make that port a union one. Last season it was proposed to take action here, but thus far nothing has been heard of the movement. Unionism in Kingston appears to have collapsed altogether.

The Montreal Transportation Company's tug Jesssie Hall while going through the narrows a few days ago broke her wheel, after which the packing around the shaft came out and she leaked so freely that the captain ran her into ten feet of water where she went down. She was raised without difficulty and repaired.

The only cargo of ice sold thus far this season was disposed of by Capt. J. Saunders of the Ella Martin, to the Wagner Company of Sandusky. Owing to low water no more whalebacks can be taken down the rapids this season. Last year only 40,000 bushels of rye was transhipped here. Already this year over 1,000,000 bushels have been received.

Monster Steel Vessel—Improved Prospects in Lumber.

Special Correspondence to the MARINE REVIEW.

WEST BAY CITY, Mich., Oct. 8.—Mr. Wheeler says that although the new steel boat which he is to build is not for the Hollister Transportation Company, owners of the Emily P. Weed, some of the stockholders of that company will be interested in the new boat. The Hollenbachs of Saginaw will be largely interested in it too. The vessel is to be the monster of the lakes, 345 feet over all, 42 feet beam and 25½ feet molded depth. Compared with the E. C. Pope, which has so far carried off nearly all the big records on the lakes, this new boat will probably make the Pope look to her laurels, while not increasing the record to any considerable extent. The Pope is built with a view to economizing everything for carrying capacity, has no main deck, but simply beams in the place of the deck, and has a wooden spar deck. The Wheeler boat will have a steel spar deck, with wooden main deck. It will supplied with cargo ports, hoisting engines and drums for the purpose of taking on package freight. Work has already commenced on her and an effort will be made to have her out by the opening of navigation.

Record of Speed and Big Cargoes.

[*Masters or owners are invited to report improvement on this list.*]

Iron ore: Lake Michigan—Maryland, Inter-Ocean Transportation Company, of Milwaukee, 3,322 gross, or 3,737 net tons, Escanaba to South Chicago, draft 16 feet 6 inches; E. C. Pope, Dry Dock Navigation Company of Detroit, 3,221 gross, or 3,608 net tons, Escanaba to Ashtabula, draft about 16 feet. Lake Superior—E. C. Pope, Dry Dock Navigation Company, of Detroit, 2,828 gross, or 3,167 net tons, Ashland to Lake Erie, draft 14 feet 6 inches.

Grain: E. C. Pope, Dry Dock Navigation Company of Detroit, 125,730 bushels of corn, draft 14 feet 8 inches; Western Reserve, Peter Minch, of Cleveland, 112,431 bushels of wheat, Chicago to Buffalo; W. H. Gilcher, J. C. Gilchrist, of Cleveland, 114,982 bushels of corn, Chicago to Buffalo.

Speed: Owego, Union Line, of Buffalo, Buffalo to Chicago, 889 miles, 54 hours and 16 minutes, 16.4 miles an hour; Saranac, Lehigh Valley Line, of Buffalo, Buffalo to Lime-Kilns, 240 miles, 15 hours and 10 minutes, 16 miles an hour.

Iron Mining.

VALUE OF LEADING STOCKS.

Quoted by Chas. H. Potter & Co., No. 104 Superior St.

Stocks.	Par Value.	Bid.	Asked.
Cleveland-Cliffs Iron Company	$100 00	$.....	$ 82 50
Champion Iron Company	25 00	.....	80 00
Chandler Iron Company	25 00	37 00	39 00
Chicago and Minnesota Ore Company	100 00	.....	100 00
Jackson Iron Company	25 00	.....	110 00
Lake Superior Iron Company	25 00	55 00	.....
Minnesota Iron Company	100 00	81 00	83 00
Pittsburg Lake Angeline Iron Co	25 00	.....	.....
Republic Iron Company	25 00	25 00	27 00
Ashland	25 00	.....	53 50
Section Thirty-three	25 00	8 50	10 50
Brotherton	25 00	2 00	2 50

In accordance with plans outlined in the consolidation of the Cleveland and Iron Cliffs mining companies a short time ago, it has been decided to receive applications and grant options for leases for mining iron ores and exploring therefor upon the lands of these companies. A map showing the lands open to option is on exhibition in the office of the Cleveland Iron Mining Company at Ishpeming, and open to the inspection of all applicants. Applications should be made in person at the said office, on Oct. 7, between the hours of 10 A.M. and 12 noon. After that time applications may be made in person or by letter addressed to either company at Ishpeming, Michigan. All options will be made for a term of three months, and renewals will be made if the parties interested faithfully perform their part of the agreement. The term of leases will be twenty years. On non-bessemer ores a royalty of 30 cents per ton will be asked. On bessemer ores a royalty of 40 cents will be required. Eighty acres may be obtained, provided the same be contiguous forty-acre tracts. All lands will be available with the exception, of course, of those in the immediate vicinity of their present working mines.

Shipments on Sept. 30 from Ashland of Gogebic range mines, several of which are also shipping from Escanaba, were as follows: Ashland 209,157 tons, Aurora 71,479, Tilden, No. 2, 5,179, Tilden 23,044, Montreal, south vein 51,462, Palms 30,687, Section 33, Bessemer 34,065, Carey 77,073, Trezona 15,759, Germania 24,954, Iron Belt 1,506, Mount Hope 78,046, Norrie 229,379, East Norrie 98,903, Comet 4,404, Federal 929, Eureka 12,752, Pabst 77,122, Ruby 913, Sunday Lake 46,212, total 1,090,210 tons. On the same date the Ludington mine had shipped 107,177 tons from Gladstone and the Hamilton mine 37,707 tons. The output of the Vermillion range, also computed to the 30th inst., is 430,544 tons for the Minnesota and 294,229 tons for the Chandler.

The Port Arthur, Duluth & Western Railway tracks have reached Sandy Lake, 54 miles from Port Arthur, and ballasting is being carried on night and day. About 12 miles more of the line is graded and ready for the iron, with the exception of the culverts and some small bridges. It is expected the line will reach Gun Flint lake and possibly the Minnesota boundary before deep snow stops work. It is said that the road will be pushed into the Minnesota iron ranges with a view of carrying out ore for shipment in bond.

The Barasa mine, one of the newly opened properties on the range east of Negaunee, suspended regular mining work some weeks ago to permit of an entirely new equipment of machinery being put in position. The machinery is now in place and the mine has resumed work. The mine promises to prove one of the most valuable on the range where it is located.

The shipment of the Chandler to date exceeds that for the same time last year by 10,461 tons. The stock pile yet contains an amount of ore which would represent a creditable season's output for many reputed big producers. The Chandler's astonishing record of the past bids fair to become commonplace when its future is revealed.—News, Two Harbors.

Mr. T. F. Cole, who has been at the head of the Schlesinger mines for some time past, is now superintendent of the Chapin mine at Iron Mountain and Capt. Jeffrey is associated with him as mining captain. Mr. Cole's successor at the mines of the Schlesinger syndicate has not yet been appointed.

Two shafts will be sunk by the Lake Superior company on the property adjoining the Winthrop mine where a valuable deposit of hematite ore was found recently.

The Superior mine, one of the Gogebic range properties near Hurley that has been idle for some time past, will shortly be unwatered and mining operations resumed.

Advanced Wages.

The Cleveland Vessel Owners' Association at a meeting held on Friday last adopted a new schedule of wages. Wages of engineers mates and cooks on steamers, hired for the season, are unchanged but in all other cases, excepting first mates on consorts and sailing vessels, advances are made. The full schedule now in force is as follows:

Steamers.	Per month for season.	Metal boats triple expansion.
First Engineers	$90 to $100	$115 00
Second Engineers	65 to 70	75 00
First Mates	65 to 75	80 00
Second Mates	45 to 55	60 00
Cooks	45 to 55	.....
	Per month old schedule.	Per month new schedule.
Helpers	$10 00 to $15 00	$15 00 to $20 00
Firemen	30 00 to 37 50	37 50 to 45 00
Wheelsmen	30 00 to 37 50	37 50 to 45 00
Lookout	30 00 to 37 50	37 50 to 45 00
Deck hands	15 00 to 18 00	18 00 to 20 00
Oilers (when carried)	30 00 to 37 50	37 50 to 45 00
On consorts and sail.	Per month old schedule.	Per month new schedule.
First Mates	$50 00 to $60 00	$50 00 to $60 00
Second Mates	35 00 to 45 00	45 00 to 50 00
Cooks	25 00 to 35 00	35 00 to 40 00
Seamen	30 00 to 37 50	37 50 to 45 00
Boys	20 00	20 00 to 25 00

A committee, consisting of Harvey D. Goulder, Esq., Capt. C. E. Benham and Capt. George P. McKay was appointed to cooperate in the matter of a convention for the furtherance of lake improvements with the board of trade committee of which Hon. George H. Ely is chairman, and which is now in correspondence with the commercial bodies of Detroit on this subject. Secretary McKay was instructed to include a request for a life-saving station at Whitefish point with the different aids to navigation that will be requested of the next congress.

In General.

John McMillan, the oldest shipbuilder on the Clyde, died at Dumbarton a few days ago.

Mr. W. I. Babcock, superintendent of the Chicago Ship Building, has patented a hoisting apparatus that is especially designed for loading and unloading railway rails into vessels or into railway cars. The machinery is to be located on the deck of a vessel and consists mainly of a series of winding drums on a single shaft, sustained by beams or arms. The beams with the shaft and drum attachment swing toward the vessel's hatchway and toward the car from which the rails are being loaded or unloaded.

"There is only a certain kind of advertising that the Marine Journal feels justified in taking in return from the lakes, for the reason that we do not solicit any advertisements that we do not believe we can give value received for." This is undoubtedly true of the Marine Journal, as it is of all trade publications that have a distinct field to cover and are recognized by the advertisers within that field. Unlike another New York publication that rehashes lake matters at a distance of several hundred miles from the lakes and seeks advertising for which no return can possibly be made, the Journal is a representative organ of coast shipping and is ably managed to that end.

MARINE REVIEW.

DEVOTED TO THE LAKE MARINE AND KINDRED INTERESTS.

JOHN M. MULROONEY, ... } PROPRIETORS.
F. M. BARTON, ... }

HOMER J. CARR, - - - Associate Editor and Manager Chicago Office, 210 South Water Street.

Published every Thursday at No. 510 Perry-Payne Building, Cleveland, O.

SUBSCRIPTION—$2.00 per year in advance. Convenient binders sent, post paid, 75 cents. Advertising rates on application.

Entered at Cleveland Post Office as Second-class Mail Matter.

CONGRESSMAN Chipman of Michigan, who is recognized as one of the ablest advocates of government improvements on the Great Lakes, and who was instigated a short time ago in inaugurating through the commercial organizations of Detroit the movement for another waterways' convention, expresses preference for Niagara Falls as a place for holding the proposed convention. Some of the earnest advocates of a canal around Niagara Falls to Lake Ontario have also suggested that the convention, which will undoubtedly be one of the most enthusiatic gatherings of shipping interests that this country has ever seen, be held at an objective point, as was the case a few years ago when a convention was held at Sault Ste. Marie in furtherance of the improvements now under way at that point. While due consideration will undoubtedly be given to these suggestions, it is evident that the active interests in the lake marine of Chicago, Buffalo and Cleveland at least—and they are the most important ports on the whole chain of lakes—will hold that for a number of good reasons the convention should be held in Chicago, or at Minneapolis or St. Paul in the northwest. Laying aside the objection that would be raised to the gathering at Niagara Falls on the claim that it would be in the aid of a canal scheme at that point, there is the great object in view in enlisting in the support of lake improvements the vast interests in the states beyond Lake Superior that are especially benefited by the reduction in carrying charges brought on by public expenditures for such improvements. That the members of Congress and representative commercial bodies in these states will take part in the convention there is no doubt. The convention will not be confined to advocating such improvements as a 20-foot channel over the entire lakes and other projects already so far under way that their completion is almost as well as assured. The initial steps will be taken in a formal manner for a waterway to the seaboard, and the Niagara Falls canal scheme does not meet with favor, either as a way of reaching the Hudson river by way of Oswego and the Erie canal, or as a means of finding an outlet for the great inland transportation business of this country in Canada by way of the St. Lawrence. These are important matters to be considered in the selection of a place for holding the convention.

IN answer to an inquiry from the MARINE REVIEW as to the legal right of states bordering on the lakes to organize and maintain a naval militia, Acting Solicitor of the Treasury F. A. Reeve says: "Your inquiry presents a hypothetic question. The attorneys general have uniformly declined to give speculative opinions on questions of law which do not arise in any case presented for action of an executive department of the government. As this view, of the duties devolving upon the attorney general is applicable to opinions that the solicitor of the treasury may be called upon to render, I must decline to respond to your inquiry." This answer from the department of justice would indicate that no attention has been given by the federal authorities to the question of treaty relationg between this country and Great Britain interfering with the organization of a naval militia, and it will be necessary that some action be taken so that an executive department of the government is called upon for a decision. Through the organization, last week, of two naval batteries at Rochester the federal authorities might find occasion for a decision in this matter. It is useless to say that naval forces can be trained on land and that there is no need of the equipment of vessels in such a manner as to risk the violation of the treaty which limits the number of war ships on the lakes. There would be little interest in a naval force that should at all times be confined to land practice.

ONE of the Detroit papers a few days ago published a highly sensational article about a decline in the water level of the lakes, and predicted an end to shipbuilding, disaster in store for owners of floating property, and a return to the primitive craft of early navigation. While it is true that the stage of water has been, according to records carefully kept in the office of Gen. O. M. Poe, U. S. engineer at Detroit, fully a foot to a foot and a half lower than at any time within a period of twenty years or more covered by these records, the decline being steady for the past five years, it is also true that similar periods of a decreasing water level are also noted in the same records. The decrease in the stage of water during such periods have, however, been followed invariably by a rise more or less marked. Vessel owners, and especially those owning big carriers of 2,000 to 3,000 net tons capacity, have suffered heavy losses through being compelled to carry short cargoes and from damage through stranding in the connecting waterways, on account of low water during the present season, but there is no cause for the wild stories that are told in this connection. Various theories have been advanced regarding this rise and fall in the waters of the lakes, but the only reasonable one is that the water level varies as the precipitation is large or small. For the last five years the rainfall in the section of the country drained by the lakes has been below the normal.

THE light-house board has made its annual report to the secretary of the treasury and recommends that especial attention be given to aids to navigation on the lakes. Approval is given to nearly all of the lights and fog signals recommended by the engineers in charge of lake districts.

Rochester's Naval Review.

Rochester is the first lake city to proceed with the organization of a naval reserve, and it is evident that the leaders in the movement have not considered the matter of treaty relations in so doing. At the state arsenal in Rochester, Sept. 29, seventy-three men were mustered into the naval reserve militia by Adjt.-Gen. Porter, assisted by Col. Thos. H. McGrath, A. A. G., and others. These men are sufficient to form two batteries toward a battalion which is to be formed in Western New York. It is certain that many other young men will join the batteries. Other batteries will be formed as the number of recruits grows large enough. Lieutenant Commander Franklin Hanford U. S. N., attended the meeting, and, in response to a request, explained the nature and purpose of the naval reserve and described the different kinds of drill. He did not doubt that with the increased interest in the navy, a torpedo boat could be obtained which would be suitable for practice. The man-of-war Michigan was on the upper lakes and it would be easy for the Rochester batteries to run up to Buffalo in the morning, take a four or five hour drill and return the same evening. He also thought, although of course he could say nothing official, that it would be possible to obtain the services of a regular naval officer as an instructor, and an appropriation for giving the battalion a week's drill every year on some of the regular men-of-war in New York harbor.

At a meeting of the American Society of Civil Engineers in New York on Wednesday, the 7th inst., one of the papers read and discussed was contributed by Joseph R. Oldham, N. A. of Cleveland, and was entitled "Tow Barge Efficiency on the Northern Lakes of America," or in other words "The American Whaleback Steamers." Another paper presented to the same meeting treated of "Some Recents Experiments with Dynamite on the Ocean Bar," and was written by Capt. O. M. Carter, a member of the society.

Around the Lakes.

The coal rate from Oswego to Chicago and Milwaukee is 90 cents.

Ashland shipped 4,892,000 feet of lumber of all kinds during the week ending Oct. 3.

The steamer Griffin, Capt. O. B. Green, made the round trip to Marquette in just six days, going up light. She was not running for a record.

The propeller Winslow, burned at Duluth, is insured for $30,000 in foreign companies. She lies in 9 feet of water forward and 11 feet aft, with everything above water burned off.

Commander Nicol Ludlow of Chicago has been in Detroit during the week hurrying the work of fitting out the three light-ships recently built for service in the Straits of Mackinac.

In a foreclosure sale a few days ago F. W. Wheeler & Co. of West Bay City bought in the propeller Mary Pringle for $900, and Capt. S. B. Grummond of Detroit the schooner S. A. Irish for $825.

The barges L. W. Drake and American Giant were sold by United States marshal at Cleveland on Monday. They were bought in by Capt. James Reid, former owner, at $2,025 for the Drake and $1,455 for the Giant.

A party of North Dakota capitalists, who were in Superior last week, talk of joining citizens of that town in the building of an elevator of 1,000,000 bushels capacity to be placed under North Dakota state inspection. Superior wants to be relieved of Minnesota inspection, on account of its rivalry with Duluth.

The Chicago Board of Marine Underwriters has made the following insurance rates on grain for the first half of October, per $100: To ports on Lake Michigan 60 cents, Lake Superior 80 cents, Lake Huron, Sarnia and Detroit river 65 cents, Georgian bay and Lake Erie 70 cents, Lake Erie and Ogdensburg 70 cents, Montreal 95 cents.

A story from West Superior says that W. J. Strong of Kansas City has been conferring with Capt. McDougall, inventor and owner of the whaleback steamers, in the interest of a lake and rail transportation company in Nicaragua. Strong is constructing a railroad connecting with the government line at Momotombo, and, running east through the district of Matagalpa to the mouth of the Rio Grande, which empties into the Atlantic Ocean at a distance of 210 miles. As a consideration for building this line the government concedes 2,000,000 acres of valuable agricultural land to be selected by the grantees. The Rio Grande is navigable by ocean vessels for 60 miles. At the head of navigation will be the terminus. It is in the water portion of the route that McDougall is to be interested and the whalebacks put into service. Strong says they supply every requisite for river and ocean trade without breaking bulk and if McDougall does not become a party to the scheme the company will have a number of boats made to their order.

Wrecks and Heavy Losses.

The steamer Jenks, sunk a few weeks ago by the steamer Morley, near Ballards reef, Detroit river, has been raised and taken to Port Huron.

The schooner W. L. Peck, coal laden and in tow of the propeller Oneida, foundered on Lake Erie, off Ashtabula, Monday morning. Her crew was saved by the steamer. She was built in 1873, registered 343 tons, rated B1½ and valued at $3,500.

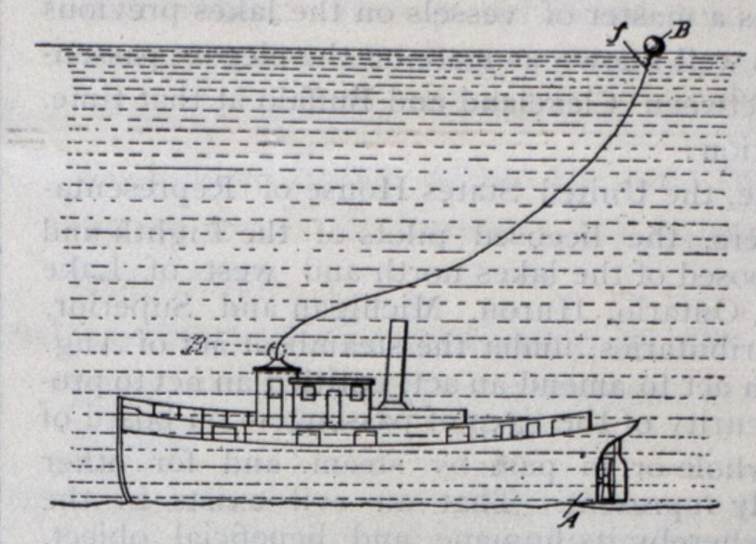
Fire destroyed the Lake Superior Transit Company's steamer Winslow at Duluth Saturday. The boat with a cargo of 900 tons of sugar and merchandise will prove a total loss. The Winslow was built in Cleveland in 1863, was of 301 tons registered and valued at $35,000.

Capt. C. E. Benham of Cleveland visited the wreck of the schooner Thos. Parsons, sunk off Fairport last week, with a view to considering for the underwriters the advisability of raising or abandoning her. He decided that it would cost more to raise her than she is worth.

One of the most distressing accidents of the season was the loss of the schooner Frank Perew, last week with all but one member of her crew, 15 miles off Vermillion point above Whitefish, Lake Superior. The schooner was laden with coal and bound for Marquette when she foundered. Her crew of seven took refuge in the small boat and, unable to get under Whitefish point drifted down the lake to Parisian island where all but Charles Larrabee, a seaman of Buffalo, were drowned in the surf while trying to make a landing The boat was sailed by Capt. J. M. Markey of Bay City. A. L. Pierson of Cleveland owned the Perew. She registered 498 tons, had an insurance value of $12,000 and was insured for $10,500.

Ward's Wreck Indicating Buoy.

In response to an invitation signed by Alex. Ward, T. G. Christie, John Dietz and J. L. Chipman, a number of vessel owners and others interested, met at the Wayne hotel, Detroit, Tuesday evening to examine a device that will no doubt be adopted by all our lake vessels within a few years. It consists of a hollow ball, consisting of two hemispheres, the bottom one being attached to a bed by a soluble glue joint, shown in illustration below. This bed is fixed to an iron plate which is screwed to the deck of the vessel or as shown above on top of the pilot house, but if placed on deck it can be used as a chair. As there has been no means patented for preventing collisions this patent would seem to be the next best thing. There are numerous cases where this device would have saved thousands of dollars, which has been expended in searching for wrecks, sometimes without result. The Polynesia, Pewabic and many others might be mentioned where this device would have been valuable. It is said that a syndicate was formed several years ago to locate the wreck of a schooner that went down off Erie in 1855 with 200 tons of copper. By changing the cord to copper wire the device is practicable for use on salt water. The valuable cargoes carried by ocean liners would certainly recommend its use. One feature of the soluble joint is that it is prepared so that it will dissolve within any time desired, from twenty-four to forty-eight hours. As soon as the disolution takes place the buoy rises, the 18-inch size having sufficient buoyancy to carry 15 pounds or 1,000 feet of cord, which reels off through the bottom. As soon as it reaches the surface the line stops paying out, the core of the spool being controlled by springs. The end of the line attached to the iron plate as well as the line attached to the buoy is re-enforced to prevent chafing. The soluble joint is protected by a flange which prevents water reaching it before the buoy has been submerged for some time, seas washing the deck having no effect on it. Commander Heyerman, U. S. N., will test the buoy and report on it.



C C—Two Hemispheres.

a—Flange.	*D*—Chamber.	*H*—Flange.
b—Groove.	*E*—Reel.	*I*—Base.
c—Gasket.	*F*—Line on reel.	*J K* Faces glued
d—Gibs.	*G*—Standard.	making soluble joint.

Write A. F. Ward, Frontier Iron Works, Detroit, Mich.

Capt. Ferris, a retired lake captain, who was inspecting some work at Bay City dry dock last week fell from a scaffold and received injuries which at first were thought to be fatal but he is now recovering. He is eighty-eight years old.

A Very Old Petition to Congress.

On Dec. 1, 1864, nearly twenty-seven years ago, the petition to which attention is drawn here was prepared and circulated among lake pilots. It was never presented to Congress and is reproduced now simply to show what little effect time has in some lines of service on the lakes as well as in other branches of business. We are indebted for this relict to Capt Geo. H. Pleasance of Cleveland, who was a master of vessels on the lakes previous to 1864, and who was well known as mate on the elegant passenger boats running between Cleveland and Buffalo at that time. Following is the petition:

To the Honorable, the United States House of Representatives: Your petitioners, the licensed pilots of the Eighth and Ninth districts, composed of the lakes north and west of Lake Erie, and Lakes Erie, Ontario, Huron, Michigan and Superior, and their rivers and tributaries, under the steamboat act of Aug. 30, 1852, entitled "An act to amend an act, entitled an act to provide for the better security of the lives of passengers on board of vessels propelled in whole or in part by steam, and for other purposes," respectfully represent: That an evil exists in the working of said act, whereby its humane and beneficial object, viz: "The better security of the lives of passengers," is seriously impaired; that the owners of vessels navigating the waters of said districts, require their mates and second mates to be licensed pilots under said act, and to serve as such pilots; that said owners also require said mates to serve as stevedores, and as such, to personally superintend, when in port, the receiving and discharging of the cargoes and freights; that these duties as stevedores, occupy closely the time and attention of the said pilots and acting mates when in port, at all hours of the day and night, and frequently as long as from thirty-six to forty hours continuously; and that as soon as the cargo and freights are aboard, the vessel proceeds at once to sea; and the said pilots and mates, though greatly exhausted from want of sleep and from unremited labor as such stevedores, are immediately called upon to discharge their full duties as such pilots and mates. It is more than human nature can stand, and the necessary consequence is, that the collisions and accidents, too frequent of late, ensue, and many lives are thereby lost. There is no disguising the fact that some of the best provisions of said act, are thus rendered nearly nugatory, and that passengers of vessels confiding in the licensed pilots, repose in false security. The evil cries aloud for an immediate remedy. Your petitioners respectfully request your honorable body to pass an amendment to said act, prohibiting said mates and second mates, if licensed pilots, from performing, while in port, any duties relating to the receiving or discharging of the freight or cargo of the vessel to which they belong, and requiring the inspectors to insert such prohibitions in the license of every pilot they shall hereafter commission, and see that the provisions of said amendment are faithfully enforced.

Affairs in Admiralty.

INTERESTING SALVAGE CASE.

Judge Locke of Florida, United States district court, recently decided a case in which he held a contract made by the wreckers with a master while his vessel was aground on a reef not to be binding. The steamship Tennasserim, laden with sugar from Havana and bound for New York, went ashore on a portion of Florida reef. The libelants, some of whom were licensed wreckers of the district, with several schooners, assisted by a large number of men from the shore, in small boats, offered their assistance. After some bargaining the master accepted their services, and entered into a written contract to pay them $10,000 for getting his vessel afloat. This contract was attached to the libel and relied upon by the libelants in the suit. The ship was lying upon a hard, rocky ridge, extending obliquely under her from the starboard quarter nearly to the port bow, upon which there was but 12 feet of water. She drew 14½ feet before going aground. The wind was light, but there was quite a swell, the wind and sea being from the S. E., while the ship headed N. by E. The salvors took about 70 tons of cargo from the boat, and after about 20 hours of service they succeeded in floating her with aid of an anchor and 10-inch hawser which was used in giving the vessel a swinging motion when the water raised. In all there were about 150 men engaged, very nearly one-half of whom were attached to licensed wrecking vessels; the others were farmers and laborers from the shore.

The court in reviewing the case said: "The service rendered in this case was undoubtedly one of salvage, although not of extraordinary merit. The vessel was in peril and the master powerless to extricate her. Drawing 14½ feet of water before going ashore, she was lying on a ridge where there was but 12 feet, with the wind and sea from a direction that would tend to push her farther ashore. The reef was known as one of the most dangerous on the coast, but the wind was light and the vessel went ashore at nearly low water, so that with the aid of an anchor she was more easily floated as she was lifted by the swell and the rising water. The contract which was made between the master and the salvors, can have no binding force upon the owners, as, although probably no special force or influence was brought to bear upon the master, yet the position in which the property in his charge was placed and the necessity of immediate action compelling the contract is recognized in admiralty law. It certainly can not be said that no advantage was taken of the master on account of the position in which his vessel was placed, as that position was the very foundation of the contract. It was not a voluntary contract on his part. He first offered $5,000 and the salvors demanded $15,000. They positively refused later to take a cent less than $10,000. If from any mistaken idea in regard to the delays or expenses of the court he desired to make a bargain, rather than submit to a judicial decision, he was nevertheless from the surrounding circumstances forced to make one that his unbiased judgement would not have approved had it not been for the position in which he was placed. It was out of his power to obtain assistance from anyone else, and therefore the amount agreed to by the master can not be accepted as the measure of the value of the services rendered. The service, however, was rendered with as fair success as the nature of the appliances at hand would permit. The unnecessarily large number of men who were permitted to aid in the work, and whom the master wrecker says he took in because 'he did not know but what he should stand in need of them' can not increase in the slightest the salvage beyond the ordinary rates, or justify one larger than would have been given had there only been men enough to do the work. There has been no appraisement of the property, but all information and evidence regarding its value has been received, and it is considered that for the purpose of salvage an approximate value of $25,000 for the vessel and $50,000 for the cargo is sufficiently near for determining an award. The property has been relieved and restored to those interested in an undamaged condition, and the vessel is ready to proceed on her voyage, and they can afford to pay a fairly liberal salvage. I consider that $7,875 will be ample compensation for the salvors, and not unreasonably burdensome upon the property."

COLLISION CASE DECIDED BY JUDGE BROWN.

A decision in a collision case of considerable importance comes from Judge Brown of the United States district court, New York. The steamer La Champagne, outward bound at night by the main ship-canal past Sandy Hook, saw, 23 degrees on her starboard hand the steamer Lisbonense coming up the south channel, about two miles off, bound up the swash, and making with the La Champagne an angle of 10¾ points. The La Champagne was going at half speed—10½ knots—and the Lisbonense full speed, or 9 knots. The La Champagne on account of her great draught of 25½ feet was limited to the channel. The Lisbonense, drawing 19½ feet, could go anywhere. When the vessels were about three-quarters of a mile apart, and no change of bearing being seen, just as the La Champagne was about to give a signal of two whistles, the Lisbonense gave her a signal of one whistle, to which the La Champagne replied with one. The Lisbonense ported enough to change her head to starboard "half a point or a point," and then resumed her former course substantially, heading up the swash channel as before. Soon after the La Champagne stopped her engines, and in a few seconds reversed full speed, with a signal of three whistles, and nearly stopped in going 1,350 feet, when her stem struck and entered the Lisbonense's port quarter two feet only, at about right angles. The Lisbonense hard a-ported on hearing the three whistles, and kept on at full speed, changing her heading about four points. The court held that the Lisbonense had violated article 19, in not making any substantial change to starboard, as her own whistle required; also articles 19 and 22 in coming back to her former course, and article 18, in not reversing; and it appearing that the La Champagne reversed in time to avoid collision had the Lisbonense preserved her course to starboard, or had she made and kept any substantial change to starboard as her whistle promised, the La Champagne was without fault, and the whole blame rested on the Lisbonense.

Notices to Mariners.

Heretofore at Rondeau light station, on the north shore of Lake Erie, the outermost range light has been the main light, being a powerful lake coast light, while the inner light has been used merely to indicate the alignment in entering the harbor. The Canadian government gives notice that after Oct. 1 this arrangement will be reversed, and the lights will show as follows: The outer or front range light tower will stand upon a crib-work block built upon the outer end of the east breakwater pier. It will be a square, wooden, open framework, painted white, and 30 feet high from the top of the block on the pier to the vane on the lantern. The light will be fixed white, catoptric, elevated 34 feet above the level of the lake, and visible 11 miles in, and over a small arc on each side of, the alignment. The inner or back range and the main light tower will be on the same eastern breakwater, 780 feet N. by E. ½ E. from the front range light. The new tower is a wooden, octagonal structure, painted white, standing on a steel-faced, cylindrical base, built up from the pier timbers, and painted brown. The light will be like the former front and main light a revolving light, showing alternate red and white flashes every 1½ minutes. It will be elevated as formerly 70 feet above the level of the lake, and should be visible 14 miles from all points of approach by water. The two lights in one N. by E. ½ E. lead to the entrance to Rondeau, and must be left on the starboard hand in entering.

The light-house board gives notice that on or about Oct. 10, the Presqu'ile pier-head light, Lake Erie, will be moved to within 30 feet of the outer end of the north pier, (Erie). The characteristics of the light will remain unchanged.

A Complete Electric Light Plant.

The electric light plant placed in the Goodrich line steamship Virginia by the Chicago representatives of the Mather Electric Company is attracting a great deal of attention. There are two Mather compound wound dynamos, ring type, with a capacity of 400 lights each. The switch board is fitted up with magnetic vane ampere meters and volt meters, circuit distributing blocks on slate bases. The circuits are so arranged that the lighting in different parts of the ship can be controlled on the switch board, special circuits being run for night and day service. All chandeliers, ceiling lights and side lights are controlled by switches and all circuits are alternated, so that one-half of the lamps or the whole can be lighted and in case a fuse should blow out in a circuit the other half of the lamps will remain lighted. The loss on the circuit is less than 2 per cent., and the insulation resistance with fixtures, dynamos, sockets, lamps and everything connected is over 270,000 ohms, which is remarkable in a steel vessel.

Some Remarks on the Virginia Supplement.

"SAULT STE. MARIE, Mich., Oct. 5.—MARINE REVIEW, Cleveland, O:

Mail one-hundred REVIEWS of October first in addition to first hundred.

J. P. HALLER, Agent."

The MARINE REVIEW supplement this week is a fine photo engraving from a painting of the passenger steamer Virginia. It is a night scene and the vessel is under full steam and illuminated from stem to stern. It is a handsome supplement.—Buffalo Enquirer.

"Will you kindly send me a duplicate of the picture of the Virginia?"

J. J. WADSWORTH,
Agent, Anchor Line, Erie, Pa.

"Your moonlight cut of the Virginia is fine. Please send me two or three copies in a tube, for which I enclose stamps."

W. A. LIVINGSTONE.
Secretary, Michigan Navigation Company.

"I think it the prettiest thing I ever saw." H. F. SPRAGUE,
Artist.

THE MARINE REVIEW:—Gentlemen:—Herewith inclosed please find twenty cents in stamps, for which please send us photo-types.

N. F. PALMER, JR. & CO.
Quintard Iron Work, New York.

Official Numbers and Tonnage.

The bureau of navigation, W. W. Bates commissioner, assigned official numbers to the following lake vessels during the week ending Sept 26:—Steam: Two Brothers, Milwankee, 37.90 tons gross, 18.95 net, No. 145,600; Countess, Detroit, 16.68 tons gross, 8.48 net No. 126,793.

THREE DOLLARS FOR TWO—THE MARINE REVIEW AND DETROIT TRIBUNE (WEEKLY) ONE YEAR FOR $2.

Avoid breakdowns, repair jobs, and expensive and vexatious delays, by the application of the **Foster Steam Regulator and Governor** to all auxiliary engines and pumps on your ship.

With this device, properly applied, racing, or undue speed, which is the greatest source of trouble, is impossible. Money refunded and expenses paid in every case of failure to operate as claimed.

More than 90 per cent. of the steamships constructed in the United States within the past two years, including all the U. S. Cruisers, are equipped with **Foster Regulators.**

Each auxiliary engine and pump on the Steamship Virginia, twenty in all, is provided with **Foster Regulators.**

For full particulars, including hints on steamship equipment, write **FOSTER ENGINEERING COMPANY,**
81 Fulton St., New York.

Regulators for sale and will be supplied by:

The W. Bingham Co., Cleveland, O.
The Globe Iron Works Company, Cleveland, O.
C. H. McCutcheon, Buffalo, N. Y.
Detroit Dry Dock Co., Detroit, Mich.
Riverside Iron Works, Detroit, Mich.
Detroit Sheet Metal & Brass Works, Detroit, Mich.
Chicago Ship Building Company, Chicago, Ill.
American Steel Barge Co., West Superior, Wis.

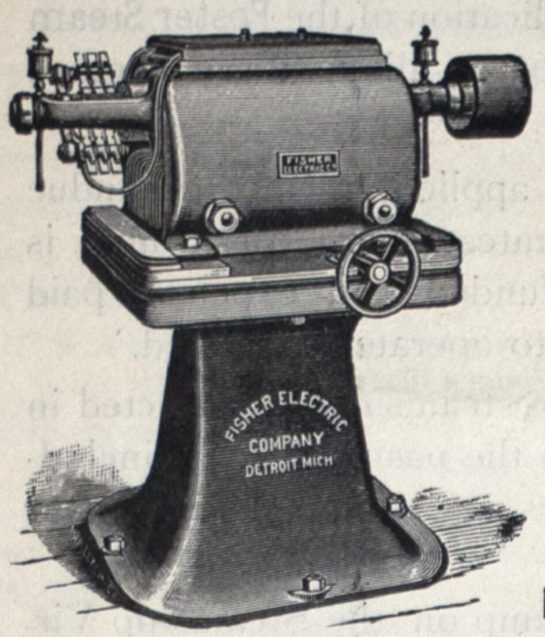
UNITED STATES ENGINEER OFFICE, 34 West Congress street, Detroit, Mich., September 19, 1891. Sealed proposals, in triplicate, will be received at this office until 2 o'clock p.m., October 19, 1891, and then opened: For furnishing ten gate anchorages for the 800 feet lock at St. Mary's Falls Canal, Michigan. Preference will be given to materials of domestic production or manufacture, conditions of quality and price (import duties included) being equal. Attention is invited to Acts of Congress, approved February 26, 1885, and February 23, 1887, vol. 23, page 332, and vol. 24, page 414, Statutes at Large. The government reserves the right to reject any or all proposals; also, to waive any informalities. For further information apply at this office. O. M. POE, Colonel, Corps of Engineers, Bvt. Brig. General, U. S. A.

SALE OF THE REVENUE STEAMER "Bibb."—Treasury Department, Washington, D. C., Sept. 30, 1891. Will be sold at public auction, to the highest and best bidder, for cash, at 12 o'clock noon of Saturday, Oct. 24, 1891, at Buffalo, N. Y., the revenue steamer "George M. Bibb." She is a screw propeller of 214 tons C. H. measurement, schooner rig with wire rigging. Was built in 1864 and thoroughly rebuilt and furnished with a new boiler, surface condenser, etc., in 1881. Her extreme length is 140 feet, beam, molded 22¾ feet, draft forward 7 feet 6 inches, aft 9 feet 9 inches. Has a Scotch tubular boiler, length 14½ feet, diameter 9½ feet, and an inverted, direct-acting engine, diameter of cylinder, 32 inches, stroke of piston 32 inches, and is provided with a steam donkey-pump, windlass, sails, awnings, anchors, chain, etc. Certain articles of outfit will be sold separately at the same time. The vessel can be seen at Langdon's wharf, foot of Genesee street, Erie Basin, Buffalo, and will be open for inspection until the date specified, The sale will be subject to the approval of the Department. A deposit of $200 will be required of the highest bidder. CHARLES FOSTER,
Secretary.

SIMPSON & MORRISON, Compass Adjusters, and manufacturers of
All Nautical Instruments carefully repaired. **NAUTICAL INSTRUMENTS.**
Office with UPSON, WALTON & CO., 161 River St., CLEVELAND, OHIO.

CHEAP EXCURSION TO PITTSBURG.—The Erie Railway will run one of its popular excursions to Pittsburg, Saturday, Oct. 10th. Tickets for the round trip only $3.00, good on all trains, and for returning until Oct. 15, inclusive. This gives five days in Pittsburg to visit the Exposition and points of interest. Remember the day, Saturday, Oct. 10, and four Pullman Parlor and Sleeping cars. City office, 141 Superior street.

SEE CAPT. PECK'S LETTER Regarding Incandescent Lighting Plant on the Steamer S. R. KIRBY.



NORTHWESTERN TRANSPORTATION CO.

DETROIT, MICH., Oct. 7, 1890.

FISHER ELECTRIC CO.,
Detroit, Mich.,

GENTLEMEN :—Replying to your inquiry regarding the operation of the 200 Light Incandescent Plant placed on the Steamer S. R. Kirby, we wish to say that the plant has operated during the season without an interruption and has not cost us one cent. No Lamps have been broken, and we would not be without it. Very truly yours,

E. M. PECK, President.

FISHER ELECTRIC COMPANY, 183, 185 & 187 Larned St., West, DETROIT, MICH

VESSEL AND MACHINERY EXCHANGE.

Space under this heading may be used gratis by our advertisers or subscribers to call attention to vessels or any craft, machinery, new or second hand, that they may have for sale. Those wanting machinery of any kind, or wishing to purchase vessels, are invited to take advantage of the same offer. Each item will be limited to three lines. Letters concerning same must mention number attached to item and be addressed MARINE REVIEW, 510 Perry-Payne Building, Cleveland. O.

65—For Sale Cheap—Two 10 x 10 Marine Engines with two 4 feet 4 inch wheels; good shafting, heater, boiler, steam pump and connections; or will exchange for small yacht or real estate.

66—Steambarge that will carry 200 tons wanted for balance of season, or longer.

67—WANTED—To purchase a tug suitable for fishing purposes 60 to 80 feet long, engine 10 to 12 square; must have good deck room and be in good condition.

68—WANTED—Engineer to purchase small interest in a dredge.

69—WANTED—700-ton steamer with large per cent. of fullness.

70—Dredge hull wanted, or parties wanted to buy machinery for same.

71—60-foot sloop yacht with roomy cabin containing two state rooms.

72—Good second-hand 60-foot fish tug wanted.

73—Triple expansion surface condensing engine, 14, 22, 36 and 24 inches for sale.

74—FOR SALE—Steam launch 28 feet long and 5 feet beam with compound engine and coil boiler.

75—Dredging plant and contract for sale.

1867. PERFECT SATISFACTION GUARANTEED. 1891.

A. G. HARBAUGH & CO.,

34 & 36 River Street, CLEVELAND, O.

Manufacturers of Strictly Pure and Acidless Lard Oils, specially adapted for Steamboat use.

Will furnish Brand free for Ship Chandlers or other dealers who desire their name and address on packages.

RARE CHANCE for capitalists to invest eight or ten thousand dollars in boats that have recently been patented and will pay from thirty to fifty per cent. per annum. Can be used in numbers of places in the United States. For further particulars address **MARINE REVIEW.**

Combination Pump and Water Closet

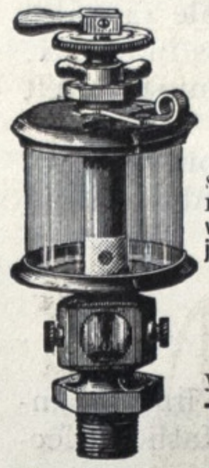
For above or below water line.
No valves or cocks to turn on or off.

WILLIAM BISHOP,

Plumber, Coppersmith and Steam Fitter,

210 South Street, NEW YORK.
Telephone Call, 4811 Cortlandt.
YACHT PLUMBING A SPECIALTY.

Powell's Signal Oilers.



INCOMPARABLE FOR ENGINES AND DYNAMOS.

Convenient to fill.

Easy to regulate.

Flow of oil can be instantly shut off by simply moving the lever down—**without disturbing the adjustment.**

Also made Double and Triple Sight feed for Marine Engines.

Your dealer can supply you. Manufactured by

The Wm. Powell Co.,
CINCINNATI, O.

ENGINEERS ONCE USING "SINCLAIR" BRAND KEEP TO IT

PURE LARD OIL ONLY

SEND FOR FREE SAMPLE TO THE MANUFACTURERS, WHO GUARANTEE ITS ABSOLUTE PURITY.

T. M. SINCLAIR & CO.,
CEDAR RAPIDS, IOWA.

POPULAR and INSTRUCTIVE BOOKS

For Engineers and Firemen,

—BY—

STEPHEN ROPER, Engineer.

ROPER'S HAND BOOKS.

Hand-Book of Land and Marine Engines	$3 50
Engineers' Handy Book	3 50
Hand-Book of Modern Steam Fire Engines	3 50
Hand-Book of the Locomotive	2 50
Instructions and Suggestions for Engineers and Firemen	2 00
Use and Abuse of the Steam Boiler	2 00
Catechism of High Pressure Steam Engines	2 00
Questions and Answers for Engineers	3 00
Simple Process	50
Care and Management of the Steam Boiler	2 00
Young Engineers' Own Book	3 00

These books embrace all branches of Steam Engineering—Marine, Stationary, Locomotive and Fire. Any engineer who wishes to be well informed in all the duties of his calling should provide himself with a full set. They are the only books of the kind ever published in this country, and they are so plain that any engineer or fireman that can read, can easily understand them.

Any of the above books will be sent to any part of the United States or Canada on receipt of list price.

Send money in Registered Letter, P. O. Order or Postal Note.

EDWARD MEEKS, Publisher,
No. 1012 Walnut St., PHILADELPHIA, PA

WRECKING AND TOWING COMPANIES.

I. H. OWEN, PRESIDENT, Chicago. F. H. VAN CLEVE, SEC. Escanaba. CAPT. GEO. BARTLEY, SUPT. Escanaba.

ESCANABA TOWING & WRECKING CO., Escanaba, Mich.

Tugs, Lighters, Steam Pumps, Hawsers, Hydraulic Jacks and Diving Appliances always ready.

TUG MONARCH, } Engine Compound, Cylinder 16 and 30 inches diameter, 30 inch. Stroke, Steam Pressure Allowed, 125 pounds.
TUG DELTA, } Cylinder 20 by 22, Steam Pressure Allowed, 105 pounds.
TUG OWEN, } Cylinder 20 by 20, Steam Pressure Allowed, 104 pounds.

CENTRIFUGAL PUMPS, Seven and Fourteen Inch Suction.

V.O.T. LINE OF TUGS.

ALVA B. JOE HARRIS.
H. L. CHAMBERLIN. TOM MAYTHAM.
W. D. CUSHING. C. G. CURTISS.

W. A. COLLIER, Manager.

Office, Main Street Bridge, Telephone 409. } **CLEVELAND.**

Steam Pumps, Hawsers, Lighters, etc., furnished on short notice.

ERIE OIL COMPANY,

HIGH FLASH. **ERIE, PA.,** **HIGH VISCOSITY.**
MANUFACTURERS OF THE

Monarch Valve Cylinder and Engineers Valve Oils,

THE MOST PERFECT CYLINDER OILS FOR MARINE USE.
EVERY BARREL GUARANTEED.

MICHIGAN READERS OF THE REVIEW SHOULD TELL THEIR FRIENDS THAT THEY CAN HAVE THE MARINE REVIEW AND DETROIT TRIBUNE (WEEKLY) ONE YEAR FOR $2.

S. B. GROMOND,

OWNER OF TUGS

WINSLOW,
LEVIATHAN,
SWEEPSTAKES,
CRUSADER, M. SWAIN,
CHAMPION, JOHN OWEN,
WM. A. MOORE &
OSWEGO.

FIRST CLASS TUGS FOR WRECKING, RAFT TOWING, ETC.,

EIGHTEEN STEAM PUMPS, ROTARY WORTHINGTON & CENTRIFUGAL HYDRAULIC JACKS, SUB MARINE DIVERS, HAWSERS, LIGHTERS &C. WAREHOUSE & OFFICE ON DOCK, FOOT OF FIRST ST.

OFFICE OPEN DAY & NIGHT
SATISFACTION GUARANTEED.
DETROIT, MICH.

BRANCH OFFICES AT PORT HURON, & CHEBOYGAN MICH

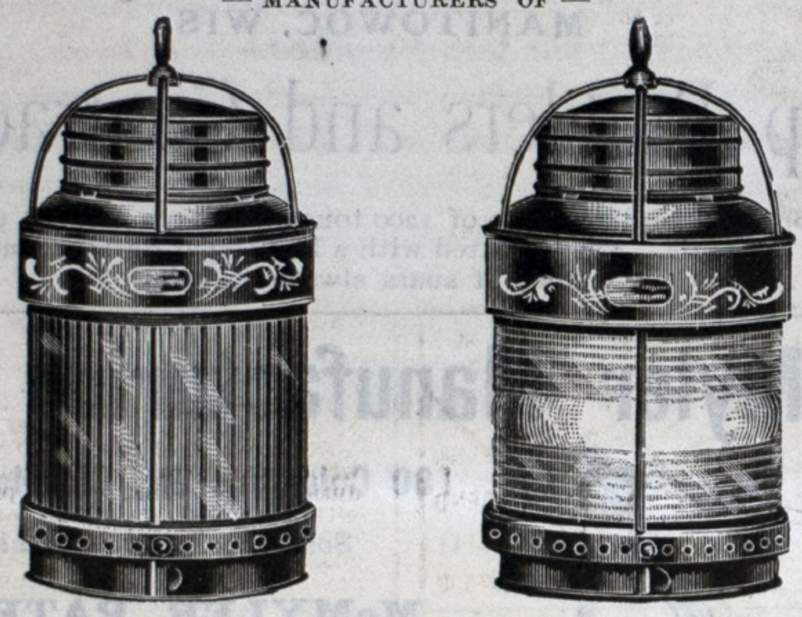
WRECKING TUG LEVIATHAN STATIONED AT CHEBOYGAN
WITH PLENTY OF WRECKING MATERIAL ON BOARD AND IN WAREHOUSE.

McBEAN, EDGE & CO.,

Steamboat Sheet Iron, Tin and Copper Workers,

— MANUFACTURERS OF —

SIGNAL LAMPS



With patent lenses, fluted or corrugated, with corrugations inside or out.

STEEL RANGES for Steamboats and Hotels.

HEAD LIGHTS, ENGINEERS' SUPPLIES,

Anchor and Binnacle Lamps; Square, Triangle and Canalboat Head-Lights; Torches, Coal Oil Lamps, Lanterns, Chimneys, Wicks, &c.

Telephone 803. 33 Main St., BUFFALO, N.Y.

TO LAKE CAPTAINS and VESSEL OWNERS.

GOVERNMENT LAKE CHARTS should be mounted on cloth back, and bound on the edges with tape, and in this way kept in better shape, made more durable, and handled without being torn. I have already mounted many Charts, giving entire satisfaction.

Reference,
Capt. Geo. P. McKay.

WM. A. HOWE,
Map and Show Card Mounter.
568 Ontario Street.

SUBSCRIPTION TO THE MARINE REVIEW IS $2 PER YEAR, BUT IF YOU SUBSCRIBE DURING THE NEXT 60 DAYS YOU WILL RECEIVE THE DETROIT TRIBUNE (WEEKLY) ONE YEAR, FREE OF CHARGE.

TRAVELERS' REGISTER.

Standard time, given here, is 33 minutes slower than City time.

THE NEW YORK, CHICAGO & ST. LOUIS R. R.

	Arrive East.	Depart East.
Buffalo Passenger	10 40 AM	10 45 AM
Chicago Passenger	9 20 PM	.....
Local Freight	4 00 PM	.....
WESTWARD.	Arrive.	Depart.
Chicago Passenger	.....	6 30 AM
Fostoria Passenger	6 40 PM	7 00 PM
Local Freight	3 50 PM	6 00 AM
Lorain Accommodation, Departs		5 10 PM
Dover Accommodation, Departs	1 30 PM	and 5 10 PM

All trains daily except Sunday.

ERIE RAILWAY.

	Arrive.	Depart.
Youngstown Accommodation	*7 15 AM	†6 30 AM
New York and Pittsburg Express	†5 15 AM	*8 10 AM
Pittsburg Accommodation	*12 30 PM	*11 25 AM
New York & Pittsburgh Limited	*9 55 AM	*2 55 PM
Mantua Accommodation	*7 20 PM	*4 20 PM
Youngstown Express	†9 10 PM	†6 00 PM
New York & Pittsburgh Express	*6 50 PM	*11 00 PM

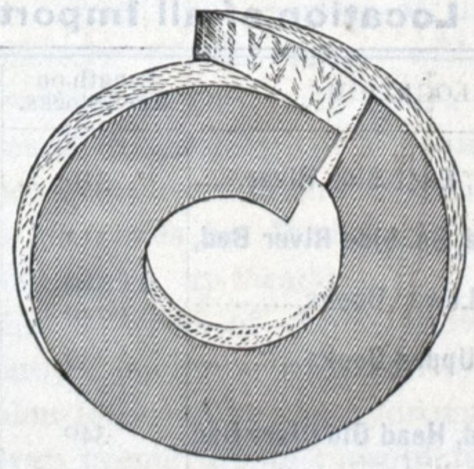
* Daily. † Daily except Sunday.

The short and direct route to Pittsburg, Washington and Baltimore. Only 4½ hours to Pittsburg; four trains daily.

For tickets, sleeping car space and further information address City Passenger Agent, 141 Superior St., (Weddell House block,) or Central Passenger Station, South Water Street.

A. M. TUCKER, Gen'l Manager, Cleveland, O.
G. E. FOUTS, C. P. and T. A., Cleveland, O.
W. C. RINEARSON, Gen. Pass. Agt., New York.

GOULD'S STEAM AND WATER PACKING.



TRADE-MARK.

Pat'd June 1, 1880—The Original Ring Packing.

For Piston Rods, Valve Stem of Steam Engines, Steam Pumps, and especially adapted for Marine Engines and Electric Light Plants.

☞ In ordering, give **exact** diameter of Stuffing Box and Piston Rod or Valve Stem.

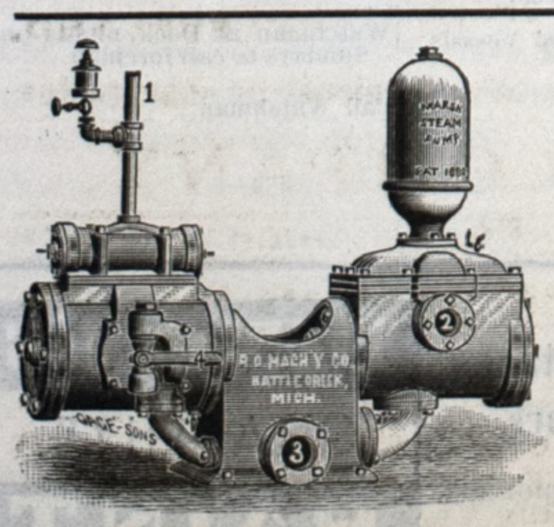
Self-Lubricating, Steam and Water Tight.

Less friction than any other known Packing. Never grows hard if directions are followed. Does not corrode the rod. **Every Package Fully Warranted.**

N.B.—This packing will be sent to any address, and, if not satisfactory after a trial of 30 days, can be returned at our expense. None genuine without this trade-mark and date of patent, stamped on wrapper. **All similar Packages are Imitations, and calculated to deceive.**

THE GOULD PACKING COMPANY,

ALBION CHIPMAN, Treasurer, East Cambridge, Mass.



MARSH STEAM PUMP,

Absolute Actuation and Regulation Without Use of Tappets, Levers or other Mechanical Connections.

FOR MARINE AND STATIONARY BOILERS.

Smaller Sizes With or Without Hand Pumping Attachment.

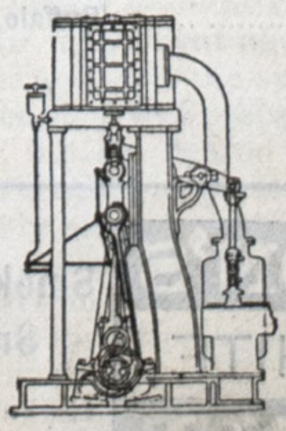
Exhaust Returned to Boiler. Heats Feed Water Forty to Fifty Degrees, according to tests made by Prof. M. E. Cooley, of the University of Michigan.
Steam Valves Actuated by Direct Boiler Pressure.

Has Fewer Wearing Parts than ANY OTHER Steam Pump.

For Circulars and Prices, address

STRONG, CARLISLE & TURNEY, Cleveland, O. STANNARD & DILLON, Chicago, Ill.
DETROIT SHEET METAL & BRASS WORKS, Detroit, Mich. H. P. TOBEY, Toledo, O.
SMALLEY BROS. & CO., Bay City, Mich. CARLETON & COLE, Port Huron, Mich.
or BATTLE CREEK MACHINERY CO., Manufacturers, Battle Creek, Mich.

THE O'CONNELL GREASER,



During the past three years hundreds of marine engines of from 2,000 to 4,000 h. p. have been served, as well as high speed electric light engines.

RESULTS:

Sure control of Crank Pin.
Stoppage of Lard Oil account.
Perfectly clean Engine

O'Connell & Cahill,
Manistee, Mich.

Dark lines indicate apparatus.

CON. STARKE. JOS. WOLTER. AUG. RIEBOLDT.

RIEBOLDT, WOLTER & CO.,

SHIPBUILDERS,

SHEBOYGAN, WIS.

FLOATING DRY DOCK WILL LIFT VESSELS OF 400 TONS.

H. D. ROOT, Lorain, O.

Established 1853.

SHIPBUILDING AND GENERAL REPAIRING.

TUGS AND STEAM YACHTS A SPECIALTY.

ERIE RUBBER CO.,

ERIE, PA.,

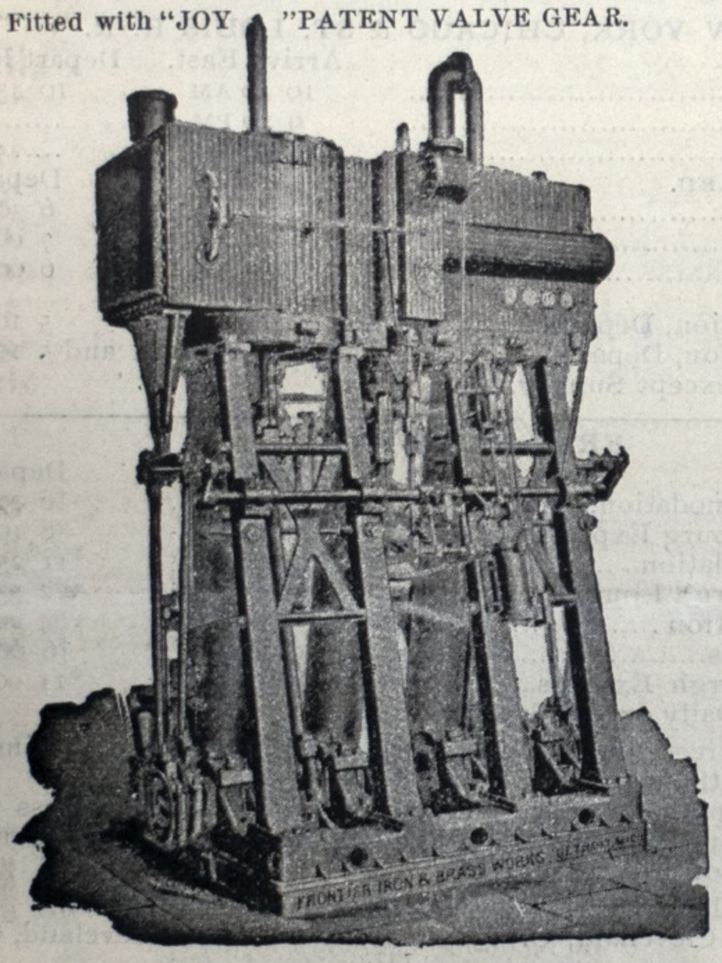
—MANUFACTURERS OF THE—

KEYSTONE MARINE VALVE.

These RED, AIR AND FOOT VALVES, are the Best Rubber Valves made.

THE FRONTIER IRON WORKS,

Fitted with "JOY " PATENT VALVE GEAR.



DETROIT, MICH.,

Builders of

TRIPLE EXPANSION

and all kinds of

Marine Engines

Engines furnished for Steamships:

T. W. Palmer,
Livingstone,
Majestic, Tampa,
John Mitchell,
Nyanza, Fedora,
Geo. F. Williams,
Mackinaw,
Keweenaw,
Jno. Harper,
W. F. Sauber,
and Iosco.
Panther, (fore and aft compound)

Trade Mark Registered Sept. 24, '89, No. 17054

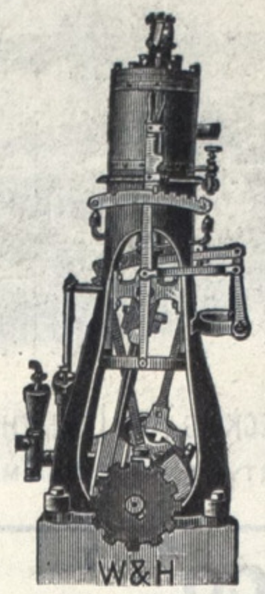
MANHATTAN SELF-LUBRICATING PACKING,

Is the BEST to be had for Steamers, Locomotives, Stationary Engines, Pumps, with oil, hot or cold water Valves, Steam Hammers, etc. It is made round and square.

Send for circulars, or sample for trial to

GREENE, TWEED & CO.,

83 Chambers Street, - New York, N. Y.



J. D. WILSON. M. HENDRIE.

Montague Iron Works,

MONTAGUE, MICH.

WILSON & HENDRIE, Proprietors.

MANUFACTURERS OF

Marine Engines and Boilers,

AND GENERAL MILL MACHINERY.

HENRY B. BURGER. GEORGE B. BURGER.

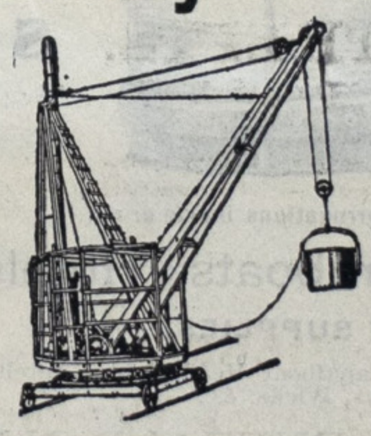
H. B. & C. B. BURGER,

MANITOWOC, WIS.

Ship Builders and Contractors.

Dock will admit vessels of 1200 tons and boxes will lift 350 ton vessels. Yard is fitted with a large spar derrick, and a stock of spars always on hand.

McMyler Manufacturing Co.,



180 Columbus St., Cleveland, O.

Sole Manufacturers of the

McMYLER PATENT

Revolving Steam Derrick

General Hoisting and Conveying Machinery, Ore and Coal Buckets and Dump Cars.

DIRECTORY OF LAKE DRY DOCKS,

Giving Dimensions and Location of all Important Docks, for Information of Owners and Masters.

DOCK.	LOCATION.	Length on Keel Blocks.	Width of Gate.	Depth of Water on Sill and Keel Blocks.	SPECIAL ADVANTAGES.	FOR NIGHT SERVICE.
Bay City Dry Dock & Ship Y'd Co.	Bay City, East Side River,.....	310	42½-43½	13-14	Nearest Dock to Mackinaw and Sault Ste. Marie.	Call Foreman Edward Trahan, cor. McEwan and Water Sts.
Cleveland Dry Dock Co.	Cleveland, So. Side River Bed,	312	40 ft. 8 in.	11½-12	Nearest Dock to Harbor Entrance.	Watchman at Dock. Manager, 75 Duane St. Foreman, 126 Fulton
Clark Dry Dock Co.....	Detroit, Lower Docks,.....	360 220	68 42	10½ 9 upper 11½ 10 end.	.....	Watchman at Dock will call Superintendent.
Detroit Dry Dock Co.	Detroit, Upper Docks,.....	239	42 ...	8 ...	..... Rebuilding.	Watchman at dock to answer calls.
Ship Owners' Dry Dock Co.....	Cleveland, Head Old River Bed	340	50	18	Depth of water enables loaded vessels to dock here.	Call Watchman.
Union Dry Dock Co.....	Buffalo,..... Upper, Lower,	343 343	48 44	10½ 15½	Three steam derricks connected with each dock.	Call watchman.
Wolverine Dry Dock Co.....	Pt. Huron, near Water Works.	200	40	14	Dock Waterlogged Vesssls.	Watchman at Dock, nights and Sundays to call foreman.
R. Mills & Co.....	Buffalo, N. Y.	280 320	40 46	12 13½	Boom Derricks.	Call Watchman.

SHOULD BE USED ON ALL

Smoke-Stacks, Boiler-Fronts, Locomotive and Steamboat Stacks, Smoke Arches, Ash-Pans, Steam-Pipes and other Iron-Work.

If you have use for such an article it will pay you to send for circular and testimonials.

JOSEPH DIXON CRUCIBLE CO., JERSEY CITY, N. J.

DIXON'S GRAPHITE PAINT

DIXON'S GRAPHITE PAINT